Проанализировав техники перевода безэквивалентной лексики, мы пришли к выводу, что наиболее оптимальными вариантами перевода на современный английский язык русского военного сленга, при невозможности подбора соответствующего английского аналога, являются транскрибирование или транслитерация и описание, с одной стороны, и дословный перевод, и описание, с другой стороны.

ИСПОЛЬЗОВАННАЯ ЛИТЕРАТУРА

1. Захарчук О.А. Универсальные характеристики и национально-культурная специфика военного жаргона: дисс. … канд. филол. наук. – Челябинск, 2007.
2. Комиссаров В.Н. Теория перевода (лингвистические аспекты): учебник. – М.: Высш.шк., 2013.
3. Розенталь Д.Э., Голуб И.Б., Теленкова М.А. Современный русский язык. Лексика. – М.: Айрис-пресс, 2002.
4. Сводный словарь армейского жаргона. – Режим доступа: http://www.afgan43/ru/index/php?option=com_context&view=article&id=34&Itemid=25 (дата посещения 11.03.2015)
5. Судзиловский Л.А. Эмоционально окрашенные элементы военной лексики. – Режим доступа: http://zwoberver.narod.ru/slovar/emotion.html (дата посещения 11.03.2015)

ALTERNATIVE ENERGY SOURCES AS AN OPTION FOR COAL FIRED POWER PLANTS

Д. Савицкий, Г. А. Низкодубов
Томский политехнический университет

Nowadays there are big environmental problems that may have a terrible influence on the future of the world. Many causes lead us to ecological cataclysm, such as emissions of a plenty of gases, spew of contaminated water into rivers or lakes and so on. However, the most important reason of ecological problems, such as greenhouse effect is the emissions of different gases in the process of firing. The most widely spread gas that is emitted in the firing is carbon dioxide, which is the main reason of greenhouse effect. One of sources of carbon dioxide emissions is thermal power plants that work on coal or gas. In the process of turning the thermal energy into the electricity, a plenty of tons of coal is burned and a big amount of carbon dioxide and another gases are emitted to atmosphere.

As it is known, there are alternative sources of energy and today it is important that there are almost no emissions of any gases and that is why people should replace the traditional method of getting the energy by unharmful for environment energy sources.

The first of such alternative sources is solar power. Obviously, the source of this power is sunlight. This energy source is renewable, and this fact gives a great benefit

to solar power in comparison with energy produced in the process of coal firing. This method of producing energy is very perspective; however, it has some disadvantages that may not afford it to become the most widespread source of power.

The first real disadvantage that it depends on weather and the amount of sunlight: the energy will not be produced at night and on the northern latitudes solar panels areunprofitable. Another remarkable disadvantage is the cost of solar panels, because of the materials they are made of, such asindium or tellurium, which are quite expensive.

According to researches, the average pay-off period is from two on the south to five years on the north. Although today the energy conversion efficiency is not good enough, solar panels are very reliable and can serve people for more than twenty-five years. That is why solar energy is very perspective and in case of wide researches, it is possible that solar energy may become used everywhere.

The next alternative source of energy is wind. This energy source is also renewable. Although wind sometimes may cause a serious damage, it may produce a lot of energy.This power source is becoming more and more popular in the world. For example, wind power stations produce more than 39% of energy produced in Denmark,and in the future part of wind energy will only grow.

As solar energetics, wind energetics is also very perspective. According to World Meteorological Organization, the total capacity of wind power is 170 trillions kilowatt hour in the year, which is much more than the capacity of water energetics. However, it has two big disadvantages. The first one is that wind energy is not concentrated in one place, it is dispersed. Moreover, winds are unpredictable: they may suddenly change its way or just vanish.

Furthermore, the area of using wind power plants is limited. The required speed of wind should be not less than six meters per second. Such wind speed does not exist everywhere. According the statistics the average wind speed in Russia is about 4 meters per second, which is not enough for effective productivity of wind power plants. In some regions of Russia, such as PrimorskyKrai or seashore of the Arctic Ocean, the speed of wind is bigger than 6 meters per second and that is why such regions have a good perspective to use the energy produced by wind power plants.Nevertheless, wind energy is becoming more and more popular.

Next probable alternative for coal fired power plants is using of geothermal energy. About 4% of water resources are under the ground. Water sources which temperature is more than 20 degrees Celsiusare called thermal. On 500-1000 metres under the surface, there are water sources containing water which temperature is 100-150 degrees Celsius and it does not boil because it is under the pressure of several atmospheres. Geothermal power plant’s construction is very simple. There are three main types of construction.

The first one is called direct. Such construction consists of tubes connected with generators. The steam goes inside the tubes and rotates a turbine that turns heat energy into mechanical energy and then generator produces electrical energy.

The second construction’s name is non-direct. The main difference between direct and non-direct is purifying steam of impurities before it gets to the turbine.

The last type is combined. Unrectified steam gets to turbine and impurities are removed from devaporated water.

The energy produced by geothermal power plants is cheaper than energy produced by other power stations. The fuel for it is free and its construction is not expensive. Geothermal power plants are often used for heating building, swimming pools and so on. However, the capital of Iceland Reykjavík does not use any energy sources except for geothermal one.

The source of the following way to produce the energy is the same the previous one. Water is the source of almost unlimited energy, because the water is renewable. The only challenge is to find ways to get it. There are three ways to produce the energy of water.

The first one is using of tides. The level of water on seashores changes three times during twenty-four hours. The construction of tidal power plant is quite simple. Part of sea is bordered by sea wall with several holes with turbines. During tides, the level of water from both sides becomes equal and water coming through holes rotates turbines, and its mechanical energy is turned to electrical energy by generators.

The second way is using of waves. This idea belongs to Tsiolkovsky. The energy is produced bywave power farm, which is the collection of special machines that are used for generation of wave power electricity. Each machine consists of several sections, between sections there are pistons and inside sections there hydraulic drives and power generators. When waves are remarkable, each section is fluctuates. This in turn activates pistons, which transport oil to hydraulic drives and they make power generators produce electrical energy.

The last one is generating the energy by movement of ocean currents. There are plans of putting a plenty of turbines in Gulf Stream near Miamiat a depth of 30 meters, where the speed of current gets 2 metres per second. According to American engineers, creating of such system is more effective than creating of usual thermal power plant.

Water energetics has great perspectives; the most powerful power plant in the world is hydroelectric power station. Its name is Three Gorges Dam and it is located in China.

The next alternative for thermal power plants is nuclear power plants. Although the fuel for nuclear power plants is not renewable, nuclear energetics is included in this list because spent fuel of traditional nuclear power plants may be used for power plants of new generation.

Traditional fuel for nuclear power plant is Uranium-235. Only 0.7% of total uranium in the world is U-235, more than 99% is another isotope U-238, which may not be used as a fuel in nuclear power plant. The necessary consistence of U-235 in the fuel should not be less than 1.5%. The name of process of reaching this concentration is uranium enrichment.

In opinion of plenty of people, nuclear energetics is a good alternative of thermal energetics. It has several important benefits in comparison with other energetics.

The first advantage is practically absolute independence of source of its fuel because of small amount of used fuel. For example, 41 tons of a nuclear fuel is enough for 1.5 year of using in power plant, while usual thermal power plant requires two full railroad trains a day.

The second advantage is absence of any harmful emissions, particularly, in comparison with coal-fired power plants. For instance, coal-fired power plants emit more than 165,000 tons of chemicals into the atmosphere a year, while nuclear power plants, as it was mentioned before, have no such emissions. Furthermore, thermal power plants requires 8 million tons of oxygen for oxidation of the fuel, while nuclear power plan don not need oxygen at all. Moreover, when coal is fired, big amount of radioactive elements are emitted to the atmosphere, while nuclear power plants unexpectedly don not emit any radioactive elements. Only disadvantage they have is heat pollution.

The last one alternative for thermal power plants is hypothetic. It is nuclear fusion. Today there is no technology to use the energy of nuclear fusion, but if people get it, the consequences may be marvellous. The source of this energy are tritium and deuterium, which are isotopes of hydrogen. Concentration of heavy water, which includes deuterium, in oceans is miserable, but it will be enough for several thousand years. However, tritium does not exist in the nature, but it can be get chemically.

In addition, if the humanity finds the possibility of using the energy of nuclear fusion, other sources of energy will not be needed at all!

Today the main source of energy in Russia is coal; however, in some regions it is possible to replace coal-fired power plants for others.

Building wind power plants will be optimal on the seashore of the Arctic Ocean and in PrimorskyKrai, because on the seashores winds have stable speed.

Solar power is optimal for southern parts of Russia. Water may be the main source of energy in Promorskiy Krai. Furthermore, there are plans to build Penzhin Tidal Power Plant, which, according to plans, will be the most powerful tidal power plant. In addition, as it is obvious that nuclear power plants may be built almost everywhere except for earthquake zones.

To summarize, although alternative ways of producing energy have many advantages, it is not possible to replace all thermal power plants. Untraditional energetics, such as solar, wind energetics are quite expensive, and furthermore in some occasions such ‘safe’ energetics may harm nature. For example, in Germany absence of manywindmill clusters has weakened the activity of winds, which before putting a plenty of windmills had cleaned cities of smog. Moreover, probable using of a plenty of tidal power plants may slow down Earth’s rotation.

Consequently, untraditional energy will not dominate in the future, and it is logically based, that nuclear energy will become the main source of energy over the world because it has several important benefits in comparison with other types of energy.